

REMARKS

Applicants thank the Examiner for his careful consideration of the subject patent Application. In response to a restriction requirement Applicant has elected to prosecute Claims 13-21, and withdraw Claims 1-12, and 22-23 from consideration. Please be advised that a divisional patent application with withdrawn claims is forthcoming. In an effort to further define and more particularly claim their invention, Applicants have also cancelled Claims 13-15.

The Examiner has rejected claims 13-21 under 35 U.S.C. §102(b) as anticipated by Genderen (US 6,742,330). Applicants respectfully disagree with the Examiner's rejection.

Claims 16 claims:

A method for estimating an exotherm across a NOx-reducing catalyst coupled downstream of an internal combustion engine, comprising:

providing an indication that a catalyst temperature is above light-off;  
in response to said indication, increasing reductant injection into the catalyst by a predetermined amount; and  
calculating an expected exotherm based on said predetermined increased reductant injection amount and on an amount of reductant stored in the catalyst.

Applicants' invention is directed to a NOx-reducing catalyst (such as an ALNC or an oxidation catalyst) wherein, once the catalyst temperature is above light-off, injected reductant combusts in the catalyst and causes a temperature rise, or exotherm, across the catalyst. Applicants have recognized that in a typical ALNC catalyst a certain amount of hydrocarbons is stored at lower operating temperatures. Once catalyst temperatures increase, stored hydrocarbons release and combust in the catalyst, causing temperature increase above the exotherm generated through external reduction injection. Therefore, Applicants' claimed solution teaches calculating an expected exotherm based on both the amount of reductant injected into the catalyst, and the amount of reductant stored in the catalyst. An advantage of the present invention is that a more accurate estimate of exotherm across the catalyst can be obtained by accounting for the exotherm generated by combustion of reductant released from catalyst storage sites.

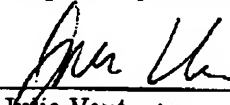
On the other hand, the Genderen reference cited by the Examiner discloses only an SCR catalyst wherein urea is used as a reductant. Genderen does disclose an oxidation catalyst coupled downstream of an SCR catalyst (see Figure 3), but only for the purpose of oxidizing excess unreacted ammonia leaving the catalyst with oxygen to nitrogen and water (see col. 15, lines 10-15). Genderen does not teach or even mention an ALNC catalyst. Applicants respectfully submit that it is well known in the art that injection of ammonia into the SCR catalyst, as well as the release of stored ammonia, cause at most a negligible exotherm across the catalyst. Therefore, Applicants' claimed solution would be inapplicable to an SCR catalyst of Genderen. Further, there is no teaching or even mention anywhere in the cited reference of injecting a predetermined amount of reductant into the catalyst, and calculating a resulting exotherm based on an amount of reductant injected and an amount of reductant stored in the catalyst.

Thus, Applicants respectfully submit that the Genderen reference cited by the Examiner does not teach any of the claimed limitations of Claim 16, and withdrawal of the rejection is respectfully requested. Applicants further submit that Claims 17-21 depend from allowable claim 16, and therefore should also be allowed.

No other art is cited in the Office Action. Based on the foregoing comments, the above-identified application is believed to be in condition for allowance, and such allowance is courteously solicited. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No.06-1505.

Respectfully submitted,

  
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